DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

R00001RC
Revision 4
Bell
427
June 27, 2006

TYPE CERTIFICATE DATA SHEET NO. R00001RC

This data sheet which is part of type certificate No. R00001RC prescribes conditions and limitations under which the product for which type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder

Bell Helicopter Textron Canada Limited
12800 rue de l'Avenir
Mirabel, Quebec
J7J 1R4 Canada

I. Model 427 (Normal Category), Approved January 24, 2000.

Engine

2 Pratt and Whitney Canada PW207D

Fuel

ASTM-D-1655, Type Jet B, Jet A and Jet A-1; MIL-T-5624 Grade JP-4; MIL-T-5624 Grade JP-5 and MIL-T-83133 Grade JP-8.

See Rotorcraft Flight Manual for fuel mixture and fuel temperature limitations.

For all operations below 5 C (40F) ambient temperature, all fuel used must contain Phillips PFA-55MB or MIL-L-27686 anti-icing additive in concentrations of not less than 0.06% or more than 0.15% by volume.

Installed Engine Limits

	Torque Lb-ft (%)	Turbine Temperature °C (°F)	Gas Generator Speed % (RPM)
Twin Engine Operation			
Take-Off (5 Min)	481 (68.6)	900 (1652)	99.8 (5790)
Max. Continuous	481 (68.6)	850 (1562)	97.2 (56400)
One Engine Inoperative			
30 sec. OEI	569 (81.2)	990 (1814)	104.3 (60500)
2 min. OEI	569 (81.2)	950 (1742)	102.2 (59300)
30 min OEI	481 (68.7)	925 (1697)	101.2 (58700)
Continuous OEI	481 (68.7)	900 (1652)	99.8 (57900)

See Rotorcraft Flight Manual for transient limits
Output shaft speed limit is 104.5% (6271 RPM)

Rotor Limits

Power Off	Power On
Maximum 423 RPM 107%	Maximum 411 RPM 104%
Minimum 356 RPM 90%	Minimum 391 RPM 99%

Transmission Torque Limits

	Torque Limits %
Both Engines Operation	
Take Off	100
Maximum Continuous	100
One Engine Inoperative OEI	
30 Seconds OEI	81.2
2 Minute OEI	75.6
Continuous OEI	57.5

Airspeed Limits

Basic V_{NE} (never exceed) is 140 KAIS. Decrease V_{NE} for ambient conditions in accordance with the Airspeed Limitations placard in the Rotorcraft Flight Manual.
Autorotation V_{NE} 80 KIAS

C.G. Range
(See NOTE 8 and NOTE 10)

1) For approved MGW configuration of 2722 kg (6,000 lbs.)

a) Internal Loading

Longitudinal C.G. limits cm (in.)

Forward limit
561.3 cm (221.0in) at 1724 kg (3800 lb.) changing linearly to 548.6 cm (216.0 in) at 2087 kg (4600 lb.), 548.6 cm (216.0 in) from 2087 kg (4600 lb.) up to 2495 kg (5500 lb.), changing linearly to 551.2 cm (217.0 in) at 2722 kg (6000 lb.).

Aft Limit
576.6 cm (227.0 in) at 1724 kg (3800 lb.), up to 2495 kg (5500 lb.), changing linearly to 574.0 cm (226.0 in) at 2722 kg (6000 lb.)

Lateral C.G Limits

Left 2.8 cm (1.1 in) at 1724 kg (3800 lb.), changing linearly up to 5.3 cm (2.1 in) at 1814 kg (4000 lb.), changing linearly to 3.6 cm (1.4in) at 2722 kg (6000 lb.)

Right 4.6 cm (1.8 in) at 1724 kg (3800 lb.) changing linearly up to7.1 cm (2.8 in) at 1814 kg (4000 lb.), changing linearly up to 4.8 cm (1.9 in) at 2722 kg (6000 lb.)

b) External Loading

Longitudinal C.G. Limits cm (in.)

Forward Limit
561.3 cm (221.0 in.) at 1724 kg (3800 lb.) changing linearly to 548.6 cm (216.0 in) at 2087 kg (4600 lb.), 548.6 cm (216.0 in.) from 2087 kg (4600 lb.) up to 2495 kg (5500 lb.) changing linearly to 550.2 cm (216.6 in.) at 2948 kg (6500 lb.)

Aft Limit
576.6 cm (227.0 in.) at 1724 kg (3800 lb.) up to 2495 kg (5500 lb.), changing linearly to 574.0 cm (226.0 in.) at 2948 kg (6500 lb.)

Lateral C.G. Limits

Left 2.8 cm (1.1 in.) at 1724 kg (3800 lb.) changing linearly up to 5.3 cm (2.1 in.) at 1814 kg (4000 lb.), changing linearly to 3.6 cm (1.4 in.) at 2722 kg (6000 lb.), changing linearly to 3.3 cm (1.3 in.) at 2498 kg (6500 lb)

Right 4.6 cm (1.8 in.) at 1724 kg (3800 lb.) changing linearly up to 7.1 cm (2.8 in.) at 1814 kg (4000 lb.), changing linearly 4.8 cm (1.9 in.) at 2722 kg (6000 lb.), changing linearly to 4.3 cm (1.7 in.) at 2948 kg (6500 lb.)

2) For approved MGW configuration of 2880 kg (6350 lb.)

a) Internal Loading

Longitudinal C.G. Limits cm (in.)

Forward Limit
561.3 cm (221.0 in.) at 1724 kg (3800 lb.) changing linearly to 548.6 cm (216.0in.) at 2087 kg (4600 lb.), 548.6 cm (216.0 in0.) from 2087 kg (4600 lb.) up to 2495 kg (5500 lb.), changing linearly to 553.0 cm (217.7 in.) at 2880 kg (6350 lb.)

Aft Limit
576.6 cm (227.0 in.) at 1724 kg (3800 lb.) to 2495 kg (5500 lb.) varying linearly to 574.4 cm (226.15 in.) at 2880 kg (6350 lb.)

C.G. Range (Cont'd)
(See NOTE 8 and NOTE 10)

Internal Loading (Cont'd)

Lateral C.G. Limits

Left 2.8 cm (1.1 in.) at 1724 kg. (3800 lb.), changing linearly to 5.3 cm (2.1 in.) at 1814 kg (4000 lb.), changing linearly to 3.4 cm (1.3 in.) at 2880 kg (6350 lb.)

Right 4.6 cm (1.8 in.) at 1724 kg (3800 lb.) changing linearly to 7.1 cm (2.8 in.) at 1814 kg (4000 lb.), changing linearly to 4.5 cm (1.8 in.) at 2880 kg (6350 lb.)

b) External Loading

Longitudinal C.G. Limits cm (in.)

Forward Limit
561.3 cm (221.0 in.) at 1724 kg (3800 lb.) changing linearly to 548.6 cm (216.0 in.) at 2087 kg (4600 lb.), 548.6 cm (216.0 in.) from 2087 kg (4600 lb.) up to 2495 kg (5500 lb.), changing linearly to 550.2 cm (216.6 in.) at 2948 kg (6500 lb.)

Aft Limit
576.6 cm (227.0 in.) at 1724 kg (3800 lb.) up to 2495 kg (5500 lb.), changing linearly to 574.0 cm (226.0 in.) at 2948 kg (6500 lb.)

Lateral C.G. Limits

Left 2.8 cm (1.1 in.) at 1724 kg (3800 lb.), changing linearly to 5.3 cm (2.1 in.) at 1814 kg (4000 lb.), changing linearly to 3.3 cm (1.3 in.) at 2948 kg (6500 lb.)

Right 4.6 cm (1.8 in) at 1724 kg (3800 lb.) changing linearly to 7.1 cm (2.8 in.) at 1814 kg (4000 lb.), changing linearly to 4.3 cm (1.7 in.) 2948 kg (6500 lb.)

3) For approved MGW configuration of 2971 kg (6550 lb.)

a) Internal Loading

Longitudinal C.G. Limits cm (in.)

Forward Limit
561.3 cm (221.0 in.) at 1724 kg (3800 lb.) changing linearly to 548.6 cm (216.0 in.) at 2087 kg (4600 lb.), 548.6 cm (216.0 in.) from 2087 kg (4600 lb.) up to 2495 kg (5500 lb.), changing linearly to 554.0 cm (218.1 in.) at 2971 kg (6550 lb.)

Aft Limit
576.6 cm (227.0 in.) at 1724 kg (3800 lb.) to 2495 kg (5500 lb.) changing linearly to 573.9 cm (225.95 in.) at 2971 kg (6550 lb.)

Lateral C.G. Limits cm (in.)

Left 2.8 cm (1.1 in.) at 1724 kg. (3800 lb.), changing linearly to 5.3 cm (2.1 in.) at 1814 kg (4000 lb.), changing linearly to 3.3 cm (1.3 in.) at 2971 kg (6550 lb.)

Right 4.6 cm (1.8 in.) at 1724 kg (3800 lb.) changing linearly up to 7.1 cm (2.8 in.) at 1814 kg (4000 lb.), changing linearly up to 4.3 cm (1.7in.) at 2971 kg (6550 lb.)

b) External Loading

Longitudinal C.G. Limits cm (in.)

Forward Limit
561.3 cm (221.0 in.) at 1724 kg (3800 lb.) changing linearly to 548.6 cm (216.0 in.) at 2087 kg (4600 lb.), 548.6 cm (216.0 in.) from 2087 kg (4600 lb.) up to 2495 kg (5500 lb.), changing linearly to 550.2 cm (216.6 in.) at 2971 kg (6550 lb.)

Aft Limit
576.6 cm (227.0 in.) at 1724 kg (3800 lb.) up to 2495 kg (5500 lb.), changing linearly to 573.9 cm (225.95 in.) at 2971 kg (6550 lb.)

Lateral C.G. Limits

	Left 2.8 cm (1.1 in.) at 1724 kg (3800 lb.), changing linearly to 5.3 cm (2.1 in.) at 1814 kg (4000 lb.), changing linearly to 3.3 cm (1.3 in.) at 2971 kg (6550 lb.) Right 4.6 cm (1.8 in) at 1724 kg (3800 lb.) changing linearly up to 7.1 cm (2.8 in.) at 1814 kg (4000 lb.), changing linearly to 4.3 cm (1.7 in.) at 2971 kg (6550 lb.)
Empty Weight CG Range	See Maintenance Manual
Datum	Model 427 station 0 datum is 203.2 cm (80 in) forward of the nose of the helicopter.
Leveling Means	Plumb line from underside of the engine pan through the access panel in the baggage compartment roof to an index plate on the floor of the baggage compartment
Maximum Weight (Mass)	2722 kg (6000 lb.) Internal Loading 2948 kg (6500 lb.) External Loading 2880 kg (6350 lb.) Internal Loading (see NOTE 8) 2948 kg (6500 lb.) External Loading 2971 kg (6550 lb.) Internal Loading (see NOTE 10) 2971 kg (6550 lb.) External loading
Altitude limits (See NOTE 8 and NOTE 10)	Maximum altitude at 2722 kg (6000 lb.) or less is 9000-ft density altitude. Maximum altitude for approved MGW configuration of 2880 kg (6,350 lb.) is 10,000-ft pressure altitude.
OAT Limits (See NOTE 11)	-20°C (-4°F) to 42.2°C (108°F) or -20°C (-4°F) to 51.7°C (125°F)
Minimum crew	1 pilot (right seat)
Maximum occupants	8 (includes crew)
Maximum Baggage	Maximum allowable baggage compartment weight is 250 pounds (113.4 kilograms) with a maximum deck and cargo loading of 86 pounds per square foot (4.2 kilograms per 100 square centimeters). Maximum allowable cabin deck loading for cargo is 75 pounds per square foot (3.7 kilograms per 100 square centimeters).
Fuel capacity	770.3 litres (203.5 US Gal.) usable, 12.5 litres (3.3 US Gal.) unusable.
Oil capacity	Each Engine: 5.1 litres (4.5 Imp. Quarts) (5.4 US Quarts); Usable oil 1.1 litres (1 Imp. Quart) (1.16 US Quarts) included in capacity Undrainable oil 1.6 lbs. Transmission: 8.5 litres (7.5 Imp quarts) (8.98 US Quarts) Tail Rotor Gearbox: 0.31 litres (0.27 Imp Quarts) (0.33 US Quarts)
Rotor blade and Control movement	For rigging information refer to the 427 Maintenance Manual
Serial numbers eligible	56001 and subsequent. Serial numbers 58001 and subsequent are not eligible for FAA Certificate of Airworthiness.
Import Requirements	To be considered eligible for operation in the United States, each aircraft manufactured under this Type Certificate must have a U.S. Airworthiness Certificate that may be issued on the basis of the Canadian Department of Transport Certificate of Airworthiness for Export signed by the Minister of Transport containing the following statement: "The rotorcraft covered by this certificate has been examined, tested and found to comply with the type design approved under Type Certificate R00001RC and to be in condition for safe operation." The approved type design for the model 427 consists of data listed on Bell Helicopter Textron top drawing 427-100-001, Revision CY, or later approved revision and the incorporation of Bell kit 427-706-018 (fuel shut off valve kit). For helicopter serial numbers 56001 through 56043, either ASB 427-01-05 must be incorporated or Bell kit 427-706-019 (FAA Type Certification Kit) must be installed. See NOTE 9.

The U.S. airworthiness certification basis for aircraft certificated under FAR section 21.29 and exported by the country of manufacture is FAR Section 21.183(c) or 21.185(c).

Certification Basis

1. For approved MGW configuration of 2722 kg (6000 lb.)

a) FAR part 27, dated October 2, 1964, amendment 27-1 through 27-31
b) FAR part 36 Amendment 36-1 through 36-20
c) The following paragraphs for FAR part 29 at amendment 29-1 through 29-40 (except 29-38) as identified in FAA AC 27-1A section 780 are used for engine isolation:

29.861(a)	29.901(c)	29.903(b)(c)&(e)
29.908(a)	29.917(b)&(c)(1)	29.927(c)(1)
29.953(a)	29.1027(a)	29.1045
29.1047(a)	29.1181(a)	29.1189(c)
29.1191(a)(1)	29.1193(e)	29.1195(a)&(d)
29.1197	29.1199	29.1201
29.1305(a)(6)&(b)	29.1309(b)(2)(i)&(d)	29.1331(b)

Equivalent Safety Findings made in accordance with FAA part 21.21(b)(1) are as follows:
29.903(b), 29.1181(a), 29.1191(a)(1) – Firewalls and Designated Fire Zones

d) Additional Equivalent Safety Findings made in accordance with FAA part 21.21(b)(1) are as follows:
27.307(b)(5), 27.723, 27.725, 27.727 – Skid Type Undercarriages
27.963(g) – Fuel Tanks
27.995 – Fuel Valves
27.1191 – Firewalls
27.175(c) - Static Longitudinal Stability in Autorotation

e) Special Condition made in accordance with FAR part 21.16 is as follows:
27-00S-SC High Intensity Radiated Fields (HIRF), dated May 11, 1999

2. For approved MGW configuration of 2880 kg (6350 lb.)

The basis of certification is the same as in 1. above and in addition the following sections of FAA Part 27:
27.561 at Amendment 27-32
27.1 and 27.2 at Amendment 27-37

Production Basis

None. See Import Requirements

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the helicopter for certification.

In addition, the following items of equipment are required:
1) For approved MGW configuration of 2722 kg (6000 lb.) Transport Canada approved Rotorcraft Flight Manual BHT-427-FM-1 dated November 19, 1999 or later approved revision.

2) For approved MGW configuration of 2880 kg (6350 lb.) Transport Canada approved Rotorcraft Flight Manual BHT-427-FM-2 dated April 27, 2000, or later approved revision.

3) For approved MGW configuration 2971 kg (6550 lb.) Transport Canada approved Rotorcraft Flight Manual BHT-427-FMS-7 dated May 10, 2002, or later approved revision.

NOTE 1

Current weight and balance report including list of required equipment and list of equipment included in certificated empty weight, and loading instructions when necessary must be provided for each helicopter at the time of original certification. The certificated empty weight and corresponding C.G. locations must include undrainable oil and unusable fuel for the appropriate model.

NOTE 2

The following placard must be displayed in front of and in clear view of the pilot: “THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH OPERATING LIMITATIONS SPECIFIED IN THE APPROVED FLIGHT MANUAL”.

All placards listed in the approved flight manual must be installed in the specified locations.

NOTE 3

The service lives of components are listed in the BHT 427 Maintenance Manual Chapter 4. This aircraft shall be maintained in accordance with the BHT-427 Maintenance Manual.

NOTE 4

Modifications within the compartment, between the main transmission and the engine accessory section, may compromise the mitigating design features approved by an Equivalent Safety Finding to FAR part 27.1191.. The FAA Rotorcraft Directorate must approve all design changes in this area.

NOTE 5

The model 427 rotorcraft employs electronic engine controls that are recognized to be more susceptible to Electromagnetic Interference (EMI) than manual (non-electronic) controls used on other rotorcraft. EMI may be the result of radiated or conducted interference. For this reason, modifications that add or change systems that have the potential for EMI, must either be qualified to an FAA acceptable standard or tested at the time of installation for interference to the engine controls. This type of testing must employ the particular engine control's diagnostic techniques and external diagnostic techniques. This testing must be accomplished in accordance with FAA approved Bell Helicopter report No. 427-099-053 Rev. D, or an equivalent FAA approved alternate test plan.

NOTE 6

Any changes to the type design of this helicopter by means of a amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA's) must be submitted thru the project certification office for review and acceptance by the Fort Worth -Aircraft Evaluation Group (FTW-AEG) Flight Standards District Office (FSDO) prior to the aircraft delivery, or upon issuance of the first standard airworthiness certificate for the affected aircraft, whichever occurs later as prescribed by Title 14 CFR 21.50. Type design changes by means of a field approval that require ICA's must have those ICA's reviewed by the field approving FSDO.

NOTE 7

The model 427 incorporates an emergency OEI limit override function. When this feature is selected, damage to the engine and transmission is experienced and continued flight is not permitted. Use of this emergency power invalidates the airworthiness of the aircraft and maintenance in accordance with the model 427 Maintenance Manual is required to return the aircraft to an airworthy condition.

NOTE 8

1. Model 427 helicopters s/n 56001 to 56024, initially certificated at maximum gross weight (MGW) of 2722 kg (6000 lb), may be operated at MGW of 2880 kg (6350 lb) when Bell Helicopter kit number 427-704-002 (or later approved revision) is incorporated. Helicopters, once modified, must be operated in accordance with flight manual BHT-427-FM-2.

2. Model 427 helicopters s/n 56025 and subsequent (s/n 58001 and subsequent are not eligible for FAA Certificate of Airworthiness) are approved at MGW of 288 kg (6350 lb.) and will have the intent of the kit listed in 1. above incorporated during production.

NOTE 9

Model 427 helicopters s/n 56001 through 56043 may be operated without the installation of Bell kit 427-706-019 (FAA Type Certification Kit) when Bell ASB 427-01-05 is incorporated. Model 427 helicopters 56044 and subsequent are modified on the production line.

Note 10

Model 427 helicopters s/n 56001 and subsequent (s/n 58001and subsequent are not eligible for FAA Certificate of Airworthiness) with kit 427-706-021 (IGW to 6550 lbs) installed may be operated at a MGW of 2971 kg (6550 lbs). These helicopters must be operated in accordance with Flight Manual Supplement BHT-427-FMS-7. Maintenance instructions and life limited parts are listed in Maintenance Manual BHT-427-MMS-7.

Note 11

Model 427 helicopters s/n 56001 through 56035 with kit 427-704-006 (IIDS Cooling Fans) and kit 427-704-010 (Oil Blower System Plenum Removal) and IIDS Data Acquisition Unit of part no. 427-375-001-105 or higher may be operated at the higher OAT limit of 51.7°C (125°F) in accordance with BHT-427-FMS-22 including Temporary Revision TR-1. Helicopters of serial number 56036 and subsequent (s/n 58001 and subsequent are not eligible for FAA Certificate of Airworthiness) have the intent of these kits incorporated during production.

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